

## Chapter 2

# Proposal and Alternatives

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This chapter describes the Proposal and the alternatives analyzed in the EIS.

### 2.1 Background of the Proposal

Cadman, Inc. has applied to King County for a grading permit to develop a gravel mining operation on Grouse Ridge east of North Bend (see Figure 2-1). The proposed mining would occur on two portions of the project site referred to as the “Upper Site” and “Lower Site.” These two portions of the project site, connected by an operational easement that was retained as part of Weyerhaeuser Company’s conveyance of intervening parcels pursuant to the 1998 Memorandum of Understanding (MOU), are a single, contiguous site for permitting purposes. Throughout the EIS there are references to the Upper Site, Lower Site, Upper and Lower Sites, two sites and sites. These references are intended to identify the upper or lower portion or portions of the project site being discussed. Cadman, Inc. proposes to excavate about 2.1 million tons of sand and gravel (aggregate) annually on the site, which would be leased from the owner, the Weyerhaeuser Company. Cadman, Inc.’s proposal responds to market demand for sand and gravel. A 1995 study by Washington State Department of Natural Resources (WDNR) estimated the consumption of sand and gravel at 16 tons per year per person, which is used for buildings, roads, stadiums, homes, airport runways, and forest roads. Duration of the project would be approximately 25 years, depending on market demand.

Sand and gravel would be extracted from 40 acres of the 115-acre Lower Site portion first, which would then be converted to a processing site for Upper Site portion material. Material excavated from 260 acres of the 578-acre Upper Site portion would be moved to the processing facility via a conveyor. Concrete and asphalt plants may be built at the Lower Site portion.

Weyerhaeuser Company and the Mountains to Sound Greenway Trust developed a conceptual plan for the mining operation during a number of meetings. The goal of these discussions was to allow for public ownership and open space protection of Grouse Ridge. The discussions involved Weyerhaeuser Company land north of Interstate 90 (I-90), extending into the Middle Fork Snoqualmie River Valley. An MOU was negotiated and signed by Weyerhaeuser Company, The Trust for Public Land, The Mountains to Sound Greenway Trust, King County, and WDNR (Appendix A). Weyerhaeuser Company agreed to donate 255 acres to public ownership and to sell another 1,380 acres for public ownership. Weyerhaeuser Company further agreed to offer for public ownership the remaining land (the proposed mining site) after gravel is excavated and the land reclaimed. As mining is completed and the

segments are reclaimed and approved by permitting agencies, Weyerhaeuser Company would offer to donate the land to WDNR. WDNR plans to hold the segments in trust for King County. The land would be managed by WDNR as a working forest.

## **2.1.1 Site Location and Vicinity Description**

The project site is east of North Bend in rural King County, in the Upper Snoqualmie Valley between the Middle and South Forks of the Snoqualmie River (Figure 2-2) in Sections 19, 20, 28, and 29, Township 23, Range 9. This area is in a designated forest production district. Figure 2-2 shows the study area for the proposal. The 115-acre Lower Site portion is at the foot of Grouse Ridge, north of I-90, east of 468th Avenue SE (Edgewick Road) at an elevation of about 690 feet. The Lower Site portion has been logged and mined for sand and gravel intermittently for many years. Access to the Lower Site portion is from SE 146th Street. Development within the vicinity of the Lower Site portion includes commercial, industrial, and rural- and suburban-type residential uses.

The 578-acre Upper Site portion is on Grouse Ridge at an elevation of approximately 1,600 feet. The Upper Site portion is accessed from the west by a gravel road and from the southeast by SE Grouse Ridge Road. Much of the Upper Site portion borders property owned by WDNR and King County. The Washington State Patrol Fire Training Academy lies to the northeast on a 53-acre parcel. The Upper Site portion has been logged but not mined. A mining operation on the high elevations of Grouse Ridge, known as the Homestead Mine, is adjacent to property included in the proposal.

## **2.1.2 Grading Permit Application and SEPA Process**

Cadman, Inc. submitted a grading permit application to King County to mine sand and gravel on the Upper and Lower Site portions on October 23, 1998. The State Environmental Policy Act (SEPA) requires King County to consider and disclose the environmental impacts of its actions. Upon filing the permit application, Cadman, Inc. agreed to a Determination of Significance (DS) and preparation of an Environmental Impact Statement (EIS). King County issued a DS on December 9, 1998. The DS documents the County's determination that significant environmental impacts could result from the Proposal, and that an Environmental Impact Statement (EIS) is therefore required. The EIS has been prepared to meet the requirements of the SEPA, in accordance with Washington Administrative Code, Chapter 197-11. Final detailed designs are not required for an EIS under SEPA.

King County activities related to development of the EIS include:

- SEPA Determination of Significance issued on December 9, 1998
- Public scoping workshop conducted on March 10, 1999, at Mount Si High School
- Draft EIS (DEIS) issued on June 15, 2000
- Public workshop conducted on July 11, 2000, at Mount Si High School
- Sixty-day public comment period, which closed on August 15, 2000
- Publication of this Final EIS (FEIS)

This FEIS addresses the issues raised during the scoping process and the comment period for the DEIS.

If Cadman, Inc. changes the proposal and King County believes the changes are likely to cause new or increased significant adverse environmental impacts not evaluated in this EIS, the County may require additional environmental analysis. For example, if the Proposal changes due to denial of water rights or large quantities of aggregate are shipped to specific offsite locations for processing, additional environmental analysis may be required. Further review may result in an addendum to this FEIS or a Supplemental EIS.

### **2.1.3 Proposal Objectives**

Cadman, Inc. has identified the following goals for the project:

- Protect the environment
- Provide for efficient removal of gravel resources for eastern King County needs by mining 40 to 60 million tons of the 200 million tons located within the project site
- Honor commitments made to the Mountains to Sound Greenway Trust
- Ensure reclamation of the land

King County's objectives are to:

- Comply with SEPA
- Comply with legal responsibilities to ensure a fair and reasoned decision regarding the proposal
- Implement the Department of Development and Environmental Services (DDES) mission, "to serve, educate and protect our community through the implementation of King County's development and environmental regulations"

## **2.2 Description of Proposal**

### **2.2.1 Alternative 2–Proposal: Lower and Upper Sites Mining - Exit 34**

This section presents a detailed description of the Proposal developed by Cadman, Inc. for the gravel operation at the Upper and Lower Site portions. The Proposal is referred to as Alternative 2 in this FEIS. The other alternatives evaluated in the FEIS are described in Sections 2.3 and 2.4.

### **2.2.2 General Project Description**

The Proposal is a phased mining plan for both the Lower and Upper Site portions (Figures 2-3 and 2-4). The Lower Site portion would be excavated first. Mining activities would occur within a 1/4 mile of the nearest residential structure. Therefore, King County has determined that a Conditional Use Permit (CUP) would be required. Some sand and gravel would be processed on site and at other locations, including Cadman, Inc.'s facilities in Seattle, Redmond, and Black Diamond, Washington. The sand and gravel transported to these facilities would replace material transported to the facilities from other suppliers (i.e., there should be no increase in the number of truck trips to these facilities). The material would also be sold directly to market. The Proposal does not include processing a significant amount of sand and gravel at any one of the company's facilities in particular.

After extraction at the Lower Site portion is complete, part of the excavated area would be developed to process gravel extracted from the Upper Site portion. Gravel from the Upper Site portion would be conveyed down the west slope of Grouse Ridge to the Lower Site portion for processing. Overburden materials (non-marketable materials such as silt and clay) would be used to establish berms for visual and noise buffering at both locations. Concrete and asphalt plants also may be built at the Lower Site portion, depending on market conditions. At its peak, the mining operation is expected to provide up to 2.1 million tons of gravel, 100,000 cubic yards of concrete and 150,000 tons of asphalt each year. Figures 2-5 through 2-15 show the sequencing of the proposed mining operation from initial excavation through final reclamation.

Mining at the Upper Site portion would take place in 50-acre segments. After a segment is mined, it would be reclaimed in accordance with the Surface Mining Act, which is administered by WDNR. Following reclamation, Weyerhaeuser Company, the property owner, would offer to donate each segment to WDNR in trust for King County, in accordance with the MOU. The property would be managed as a working forest.

### **2.2.2.1 Lower Site Portion**

Over a 5-year period, Cadman, Inc. proposes to extract gravel from about 40 acres of the 115-acre Lower Site portion. The 40-acre area is located generally at the center of this portion of the site, which would provide approximately 75 acres of buffer between the mining area and the Lower Site portion boundary. The access road would parallel I-90, then turn north into the excavation/operations area. Earthen berms would be constructed adjacent to the south and north sides of the facility, from excavated overburden material (soil overlying the sand and gravel to be excavated). These berms would be developed to lessen the visual and noise impacts of the processing facilities. Final excavation at the Lower Site portion would establish the layout of the future operations/processing facility. After extraction is completed, an operations/processing facility, encompassing 25 acres, would be constructed on the excavated floor approximately 40 to 70 feet below the current grade.

A new water supply well would provide water to be used during processing operations, for dust suppression and as the site fire water supply. The water would be stored in an underground vault located beneath the truck parking area in the west portion of the mine pit. The reinforced concrete vault would be approximately 8.5 feet deep by 50 feet wide by 100 feet long and have a capacity of at least 300,000 gallons. (The freshwater storage pond at the Lower Site portion which was discussed in the DEIS has been removed from the proposal by the applicant.) Temporary settling ponds for water used in processing would be located at the Lower Site portion, and moved to the Upper Site portion after space is created for the ponds. The water would be recycled through the processing facility.

Prior to completing excavation of the Lower Site portion, a conveyor belt would be built to move aggregate from the Upper Site portion to the Lower Site portion for processing. The conveyor would transport sand and gravel down Grouse Ridge and place it in a large mound called a surge pile. The surge pile is estimated to have a base diameter of 186 feet and a height of 70 feet. The conceptual site design can accommodate a surge pile as large as 240 feet at the base and 90 feet high (see Figures 2-3 and 2-4).

At the processing facility, sand and gravel from the Upper Site portion would be crushed or washed, sorted, and stockpiled. During later phases of the project, Cadman, Inc. may construct enclosed concrete and/or asphalt mixing facilities at this location. The decisions to build concrete and asphalt plants would be based on market demand, regional construction trends, and other business factors. For the purpose of evaluating impacts in this EIS, it has been assumed that these facilities would be constructed and operated following excavation of sand and gravel at the Lower Site portion.

The processed sand and gravel, asphalt and concrete would be loaded into trucks and distributed throughout eastern King County. The primary truck routes would be SE 146th Street, 468th Avenue SE, and I-90 via Exit 34. The Lower Site portion would be configured in a manner to reduce the amount of backing-up by vehicles. A series of circular loop drives would allow loading the various products as efficiently as possible to avoid maneuvering or reversing of vehicles.

The equipment required for processing on the Lower Site portion would include several rubber-wheeled front-end loaders, an excavator, and gravel dump trucks. The processing facility would include secondary and tertiary crushers, vertical sorting screens, washing equipment, dust-control devices, conveyors, and a feeder, depending on the phase of the project proposal. A primary crusher would also be located on the Lower Site portion during the initial phases of the project. Other facilities include one 10,000-gallon fuel tank, an operations office, and a vehicle maintenance building. Fuel facilities would feature double-wall tanks and concrete containment, or equal or greater protection technology.

The general model for the asphalt plant is an enclosed plant in Everett. The model for the concrete plant is a plant in Ellensburg. If Cadman, Inc. decides to build asphalt and concrete plants, the company would purchase state-of-the-art equipment that meets or exceeds operational and environmental needs. Both the asphalt and concrete plants would be in contained buildings to control noise and emissions. Design details would be provided during building permit review. Ready-mix concrete trucks would operate at the site if the concrete plant is built.

### **2.2.2.2 Upper Site Portion**

Gravel deposits on the Upper Site portion would be excavated after mining on the Lower Site is completed. Gravel would be removed from 260 acres of the 578-acre Upper Site portion over a period of approximately 20 years. Excavation would encompass 50 acres or less at any one time. Excavation would be set back about 100 feet from the western lip of Grouse Ridge. As the deposit is mined downward and to the east, equipment would be lowered and contained within the excavated bowl shape. As excavation is completed, each segment would be regraded and planted with native vegetation. A buffer of approximately 318 acres would be left in a natural state to minimize visibility of mining activities from the surrounding areas. The Proposal includes excavation of the Upper Site portion to an elevation of 1,535 feet. The depth of excavation would range from approximately 65 to 145 feet.

The equipment used to extract gravel from the Upper Site portion would include a rubber-wheeled front-end loader, an excavator, and a bulldozer. There may be times when additional equipment would be used for special purposes, but according to the Proposal, the operation can be fully supported with a single front-end loader and a bulldozer

(Appendix A). Following construction of the conveyor, a primary crusher would be moved to the Upper Site portion (see Figures 2-3 and 2-4).

### **2.2.2.3 Conveyor**

Gravel would be transported from the Upper Site portion via a conveyor located on the west side of Grouse Ridge and deposited in a surge pile at the Lower Site portion (Figure 2-3). Cadman, Inc. is considering several options for the conveyor. The one described here and analyzed in this FEIS represents a likely worse-case scenario because it would require the most grading. A preliminary grading plan representing this scenario was developed by URS and is the basis for impact analysis.

The conveyor would be located in an approximately 20-foot-wide corridor that would include the 36-inch to 42-inch conveyor, a maintenance road about 10 to 14 feet wide, a water pipeline under or along the conveyor, and a vegetated swale or drainage ditch on the uphill side of the maintenance road which would serve as drainage control. This corridor width does not include grading of the slopes required to construct the corridor. Following grading, the disturbed areas on both sides of the route would be planted so that vegetation starts to fill in before the conveyor and road are built. The conveyor, approximately 4 to 5 feet above grade, would be covered with a non-reflective metal cap to blend in with vegetation and prevent rain water and debris from mixing with the aggregate material. Diverted surface water runoff would first enter a sediment trap and then a diffusion tube on the downhill side of the conveyor.

A straight conveyor alignment is proposed because a change in conveyor direction would create the potential for aggregate spills at the transfer points. The alignment stretches approximately 5,300 feet and rises 800 feet in elevation. Maximum slope of the alignment would be about 17 degrees, although a majority of the alignment is less steep. The slope of the conveyor would vary with the topography. Approved mining and processing activities may be allowed on steep slopes under King County Code (KCC).

Based on the available topographic data and the conveyor alignment proposed by Cadman, Inc., URS developed a preliminary grading plan for the conveyor and maintenance road. To accommodate the conveyor and maintenance road, grading, including cut and fill slopes would be required. Cut and fill slopes with 1.5 feet horizontal to 1.0 feet vertical (1.5 H:1V) gradients are proposed. The width of the conveyor cut corridor is estimated to range from 70 feet to 110 feet, with the wider cuts required along the upper 800 feet of the conveyor to cross the steep ridge of the Upper Site portion. The cuts would be up to 25 feet deep. However, Cadman, Inc. may decide to reduce the cut at the crest by elevating the conveyor or placing it in a trench. Within the excavation area, the conveyor would be at 1,535 feet elevation and then climb out of the mine at about 10 degrees to go over the ridge. The conveyor would be extended in segments within the excavation areas as needed to keep

the primary crusher close to the working face of the excavation as it moves to the east.

The maintenance road would parallel the conveyor for access to the conveyor along most of its length. The road would depart from the conveyor alignment in three areas. Cadman, Inc. conducted field reconnaissance with survey crews to determine where the road would depart from the conveyor alignment. These road segments are based on local topographic features such as knobs and avoid the steepest portions of the alignment. In the areas where it departs from the conveyor corridor, the conveyor maintenance road width is estimated at 15 feet, exclusive of any grading, for purposes of analysis in this FEIS. The road would likely be narrower in steep sections and wider in flatter sections. The maintenance road would not be paved and would have minimal vehicle traffic, similar to an access road for a ski lift. The road would pass under the conveyor in two locations, and an existing forest road would pass under the conveyor in one location, providing access for deer and elk.

A pipeline within the conveyor alignment would carry processed water from the Lower Site portion to the Upper Site portion. Process water would be treated and recirculated to the Lower Site portion operations area via a second pipeline for reuse in the processing facilities. Check valves or sensors on the water pipes would be monitored and inspected to detect potential leakage.

Two other conveyor options that would reduce the amount of required grading are being considered by Cadman, Inc. and are briefly described below:

- A conveyor that would utilize box culverts, tunnels, or monopoles to minimize the grading. The maintenance road under this scenario would be similar to that described above.
- A pipe conveyor that would parallel the existing road up the west side of Grouse Ridge. The existing road would require some widening in places to accommodate the conveyor.

The final conveyor design would be determined during permit review. Weyerhaeuser Company retains the right to necessary operating easements for the sand and gravel operation, according to the MOU. This includes easements for the conveyor, stormwater drainage, utilities, ingress and egress, and other needs.

#### **2.2.2.4 Hours of Operation**

Cadman, Inc. proposes mining and processing operations at the Lower Site portion to be conducted from 5 a.m. to 10 p.m., Monday through Saturday. Truck loading is proposed for 24 hours per day, Monday through Saturday. Most loading is expected to occur during daylight hours.



At the Upper Site portion, operating hours would be from 7 a.m. to 5 p.m. Monday through Friday, with maintenance only on Saturday from 7 a.m. to 3 p.m.

The King County Grading Code 16.82 regulates gravel pit and mining operations. KCC 16.82.100(13) sets hours of operation from 7 a.m. to 7 p.m. unless otherwise authorized by the department director. King County DDES uses a number of criteria to evaluate a proposal to operate beyond those hours. The major criterion used in this evaluation is the ability of the operation to remain in compliance with the noise regulation in KCC 12.86-12.100.

### **2.2.2.5 Phasing**

The North Bend Gravel Operation Project is planned to occur in 11 phases, beginning with pre-excavation work at the Lower Site portion and ending with reclamation of both the Lower and Upper Site portions (see Figures 2-5 through 2-15). The market demand for aggregate products in eastern King County would determine the rate of excavation. Operations are expected to be limited to the Lower Site portion for the first 5 years, with the overall life of the project not to exceed 25 years.

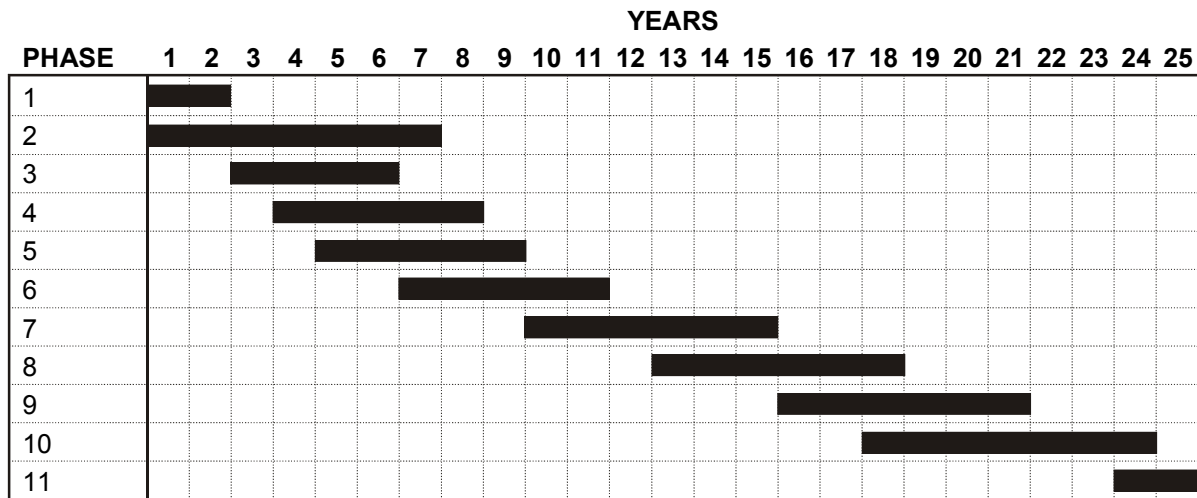
Cadman, Inc. defines construction as placing and building the equipment and support facilities, including the pond, berms, building plants, conveyors, water pipelines, and paving around the site. Operations are the handling and processing of sand and gravel. Construction would occur during the beginning of a phase, and its duration would vary depending on a multitude of factors. Mining and construction may overlap in different areas. The difference between construction and operation for gravel mining is not as defined as with other types of grading work.

Tables 2-1 and 2-2 summarize the phasing plan. Table 2-1 indicates the years of operation for each phase; Table 2-2 summarizes the activities during each phase for the Lower Site, conveyor, and Upper Site. Ongoing activities such as dust control and stormwater detention and infiltration are not included in this summary. The original version of this phasing plan (October 23, 1998) is included as an attachment to the MOU in Appendix A.

**Table 2-1  
Phasing Activities**

PHASES	PHASING ACTIVITIES										
	1	2	3	4	5	6	7	8	9	10	11
<b>Lower Site Portion</b>											
Remove overburden	●										
Build access road	●										
Build berms, plant trees	●	●	●	●							
Build office & truck wash		●									
Landscape areas		●									
Excavate sand & gravel		●									
Install primary crusher		●									
Build processing facility			●								
Pave truck routes & parking			●								
Grade & stabilize side slopes				●							
Landscape operations area				●							
Build third berm, if needed				●	●						
Build temporary settling ponds					●						
Process Upper Site aggregate					●	●	●	●	●	●	
Build and operate concrete/asphalt plants, if applicant decides to do so							●	●	●	●	
Remove equipment, buildings											●
Grade & plant operations area											●
<b>Conveyor corridor</b>											
Clear and grade route	●										
Plant trees along route	●	●									
Install drainage systems	●										
Build conveyor construction			●	●							
Build pipeline system				●							
Maintain road & conveyor					●	●	●	●	●	●	
Remove conveyor & equipment											●
Grade & plant route											●
<b>Upper Site Portion</b>											
Remove overburden				●		●	●	●	●		
Excavate sand & gravel					●	●	●	●	●	●	
Build berm to screen transfer pt.						●					
Grade & plant berm							●				
Build berms to screen upper conveyor & settling ponds							●				
Create final landforms								●	●	●	
Remove equipment, etc.											●
Grade and plant excavation site											●

**Table 2-2  
Estimating Phasing Schedule**



### 2.2.2.6 Environmental Elements of Proposal

This section discusses project items related to one or more specific elements of the environment. Mitigation measures that Cadman, Inc. has included in the Proposal to reduce environmental impacts of the project are also described.

#### Soils and Geology

Under the Proposal, the total excavation cut at the Lower Site portion would be approximately 2,610,000 cubic yards. Topsoil at the Lower Site portion would constitute the top 2 feet, or approximately 130,000 cubic yards, of the total cut. Berm volumes are estimated at 113,000 cubic yards. Sufficient topsoil should be available to build the two proposed berms. Overburden not used for berm construction would be used to shape the existing gravel face at the north end of the leased area. Berms would be conditioned with soil amendments and planted with Douglas fir seedlings.

The total excavation cut at the Upper Site portion would be about 37,150,000 cubic yards.

#### Air Quality

Cadman, Inc. would initiate a dust control plan as required by Puget Sound Clean Air Agency. Regulations require the use of best available control technology (BACT) to control emissions. Cadman, Inc. has proposed to control dust in the operations area by using water. To reduce dust that could be generated by vehicles, the maximum speed limit onsite would be set at 10 mph. Lower speed limits would also reduce onsite traffic noise. Speed limit signs would be installed. All employees and customers would be required to comply with the speed

limit. Truck routes, including the access road and parking areas, would also be paved and swept as appropriate in order to reduce dust.

A truck-cleaning facility near the western boundary of the Lower Site portion would be designed to prevent the tracking of debris onto public roadways by removing debris from the undercarriages of all vehicles departing the processing plant areas. This removal would be accomplished through the use of a high-pressure truck washing system, a vibrating debris removal system, or similarly effective technology. Cadman, Inc. has developed an effective high-pressure tire and undercarriage washing system, which is in use at its other operations. If water is used, it would be recycled to the processing plant or routed to a suitable oil-water separator if a processing plant is not built.

The asphalt plant would also need to meet BACT requirements defined by the Washington Administrative Code and implemented by the Puget Sound Clean Air Agency to reduce pollutants such as hydrocarbons and particulate matter.

During the initial site clearing activities, woody debris may be stockpiled or disposed of by burning. Current mine practices require a Forest Practices Permit be obtained prior to burning forest byproducts. Local state regulators have indicated that burning conditions in the area of the mine require special attention. If burning cannot be conducted in accord with applicable regulations and conditions, large woody debris not used for reclamation would be managed in some other manner, such as stockpiling and chipping, or offsite disposal.

## **Noise**

Equipment at the Upper and Lower Site portions that is estimated to generate noise over 60 A-weighted decibels (dBA) at a distance 50 feet away includes bulldozers, front-end loader, primary crusher, processing facility, wash facility, conveyor belt transfer point, concrete facility, asphalt plant, and loaded gravel trucks. (For a description of noise levels, refer to the Noise analysis in Chapter 5.) Back-up beepers that adjust to background noise levels (i.e., ambient sensitive beepers) would be installed on all haul equipment and equipment stationed at the sites. The beeper sound ranges from 87 to 112 dBA. The Lower Site portion layout minimizes, but would not eliminate, the need for trucks to back up. Onsite and offsite truck traffic also has the potential to create significant noise.

Noise impacts would be mitigated in part by the location of the operation area in the base of the excavation at the Lower Site portion. In addition, earthen berms would be constructed of excavated overburden material on the south and north sides of the operations facility on the Lower Site portion. These berms would be developed to lessen the noise and visual impacts of the processing facilities. One earthen berm would be located adjacent and north of the operations area, thus providing additional noise buffering and visual screening to residential areas

farther north. The second earthen berm would be constructed adjacent and south of the operations area to screen views from eastbound and westbound I-90. A third berm on the north property line may be built if King County determines it is needed to reduce noise and shield views to the north. Overburden from the Upper Site portion could be used to build the third berm.

## **Water**

**Drainage Plan.** The Proposal includes a conceptual drainage plan. A more detailed drainage plan would be required as part of the grading permit submittal. All excavations on the Lower and Upper Site portions would be contained within a closed depression. Stormwater collected in active mining areas would be contained within the segment being mined and allowed to infiltrate to groundwater. Stormwater runoff would be managed by direct infiltration to surface soil and diversion of excess runoff to infiltration ponds. These facilities would be maintained for the life of the mine and reclaimed as permanent engineered or manmade riparian zones when mining is complete. Drainage at the slope faces would be controlled through the use of interceptor dikes or swales as necessary. Drainage from the Upper Site portion maintenance road adjacent to the conveyor alignment would drain to the Lower Site portion.

At the Lower Site portion, stormwater runoff would be conveyed via drainage ditches and temporary piping to an infiltration pond at the west end of the processing facility. Water would infiltrate into the underlying soil. Offsite drainage would be controlled through perimeter ditches, which would route stormwater to existing drainage pathways.

Infiltration ponds would be designed in accordance with the *King County Surface Water Design Manual*. Cadman, Inc. would also comply with requirements for a National Pollutant Discharge Elimination System (NPDES) Permit, as administered by the Washington State Department of Ecology (Ecology). Presettling in biofiltration swales, wetponds, stormwater wetlands or presettling ponds would be provided before stormwater enters the infiltration ponds.

Prior to construction of permanent stormwater facilities, stormwater is expected to be contained within the excavation area and naturally infiltrate into the ground.

**Buffer Zone.** Cadman, Inc. had initially proposed a buffer zone of 20 feet between the base of the excavation and underlying water table at the Lower Site portion to protect groundwater resources from potential impacts related to the gravel operations. Investigations completed by URS and described in the DEIS indicated that it was unlikely that a 20-foot buffer zone could be maintained in the easternmost portion of the Lower Site portion. In response to this finding, Cadman, Inc., proposed to install a groundwater seepage interception trench (constructed as a French drain) at the toe of the excavated slope in the eastern part of the

Lower Site portion. The trench would intercept seasonally rising groundwater levels, maintaining at least a 5-foot buffer between grade level and the underlying water table. Groundwater seeping into the interception trench would be drained laterally to the stormwater pond.

**Groundwater Monitoring.** To monitor groundwater quality, Cadman, Inc. would install a monitoring well approximately 1,000 feet southeast of the Sallal No. 3 Well. Water quality in this well and selected other onsite wells would be monitored on a regular basis following construction.

**Water Use and Supply.** Mining operations are estimated to require approximately 2.6 million gallons of water per day (gpd). Most of this water would be recycled onsite and reused. Consumptive water use is estimated at approximately 150,000 gallons per day average (70 gallons per minute average), or 6 percent of the total daily water usage. A breakdown of proposed water use is presented in Table 2-3.

**Table 2-3  
Alternative 2–Proposed Water Use**

<b>Water Use<sup>a</sup></b>	<b>Gallons per day (gpd)</b>
Aggregate processing	2.45 million
Truck washing	144,000
Dust control	45,000 (6 months/year <sup>b</sup> )
Concrete production	18,000
Domestic use	200
Total of all mining operations	2.63 million
Total water consumption or evaporation	150,000

<sup>a</sup> Most water used will be recycled and reused, with approximately 6 percent consumed or lost to evaporation.

<sup>b</sup> Rain is expected to keep dust under control the remainder of the year.

Cadman, Inc. proposes to obtain water from groundwater sources at the Lower Site portion. Water would be obtained from a new well drilled into a deep aquifer, contingent on a successful water rights application. An application has been submitted to Ecology for a term water right for 127-acre feet per year or 79 gallons per minute (gpm) only for the duration of the project. If the water right is granted, Ecology would require that the well be located to minimize interference with neighboring wells. If water rights are not granted, Cadman, Inc. may limit the range of rock products produced at the site, or pursue other options for obtaining water. Dry screening and vibratory wheel washing could be used as alternates to water for the washing processes.

An underground water storage vault at the Lower Site portion would provide water to meet peak demand conditions. (The freshwater storage pond at the Lower Site portion which was discussed in the DEIS has been removed from the proposal by the applicant.) The vault would be located beneath the truck parking area in the west portion of the mine

pit. The cast-in-place reinforced concrete vault would have a capacity of at least 300,000 gallons or 0.92 acre-feet and be approximately 8.5 feet deep by 50 feet wide by 100 feet long. The vault would have four sides, a bottom, and a top. Elevation of the pit bottom is approximately 640 feet, which would allow for construction of the vault without encountering groundwater. The vault would store groundwater supplied by the new well.

Water pumped from the vault would be used to replace process water lost during aggregate processing, concrete and asphalt production, and evaporation from process water recycling (in settling ponds) at the Upper Site portion. The vault would also serve as the Lower Site portion's fire water supply. Water levels within the vault would be affected by water draws for process uses, and controlled addition of groundwater from a new well.

**Process Water/Pipelines to Upper Site.** An underground pipeline would be constructed from the Lower Site portion to the Upper Site portion along the conveyor corridor. Process water would be pumped to the Upper Site portion, treated with a flocculent or naturally settled out to remove sediments, if needed, and discharged to settling ponds on the western end of the Upper Site portion. Clarified water from the ponds would be returned to the Lower Site portion by pipeline for reuse in the aggregate processing facilities, concrete batching, truck washing, dust control, and other operations. A pump house would be built.

## **Energy**

The Proposal includes the use of propane gas to run the asphalt plant. A 10,000-gallon propane tank would be installed onsite. Cadman, Inc. is considering the use of diesel fuel in lieu of propane to run the asphalt plant. If diesel fuel is used for this purpose, a 15,000- to 20,000-gallon diesel fuel tank would be required.

In addition, a double-walled diesel fuel storage facility in secondary containment such as a concrete building (to reduce impacts in case of a spill) is also proposed. The 10,000-gallon, aboveground diesel tank would provide onsite storage and dispensing to fuel gravel trucks, front-end loaders, bulldozers, and other trucks. Fuel deliveries would take place as needed.

## **Aesthetics, Light, and Glare**

**Height of Structures and Features.** Structures generally would be built at the base of the excavation, which would reduce their visibility. The surge pile would be the tallest feature at the Lower Site. The top of the surge pile, which would be about 70 feet high and 186 feet wide, would be at an elevation of approximately 745 feet. Elevations for other structures and features are presented in Table 2-4.

**Table 2-4**  
**Elevations of Proposed Site Structures and Features**

Structure/Feature	Elevation (feet)
Existing high point, excavation area – Upper Site portion	1,640
Existing grade, north rim – Upper Site portion	1,560
Proposed grade, north rim – Upper Site portion	1,555
Existing high point, conveyor alignment – Upper Site portion	1,600
Proposed high point, conveyor alignment – Upper Site portion	1,595 to 1,600
Existing high point, excavation area – Lower Site portion	750
Proposed grade, top of surge pile – Lower Site portion	745
Top of proposed conveyor at surge pile – Lower Site portion	755
Existing grade, south berm area- Lower Site portion	665
Top of proposed south berm – Lower Site portion	700
Top of proposed north berm – Lower Site portion	740
Top of proposed asphalt/concrete plants – Lower Site portion	720

The area of the Lower Site portion that would be visually screened from I-90 without construction of the berms is shown on Figures 2-5 through 2-7.

**Visual Screens.** As described above, two or three berms would be constructed at the Lower Site portion to provide noise buffering and visual screening of the operations area. In addition, overburden removed from the Upper Site portion would be used to build an earthen berm to screen the conveyor transfer point. The transfer point is where the cross-ridge conveyor would connect with the main conveyor to the Lower Site portion.

To minimize the visual impact of the conveyor, the applicant would make an effort to retain existing trees adjacent to the conveyor corridor when clearing and grading the conveyor route. The disturbed area on both sides of the maintenance road along the conveyor would be planted with Douglas fir seedlings. Tree branches would be allowed to grow over the conveyor.

**Lighting.** New fixed-light sources proposed for the Lower Site portion would include lighting on the concrete and asphalt plant buildings, the aggregate processing facility, conveyors within the mining area (lighting along the conveyor between the Lower and Upper Site portions is not proposed), and pole-mounted security lighting. The Proposal calls for lighting to use low pressure sodium bulbs, a type of lighting that emits a low-intensity light designed to minimize impacts on surrounding properties and nighttime sky viewing. The Proposal includes full cutoff luminaires to direct light onto mining areas, not up or beyond the sites. In addition, proposed lighting sources would be located below the top of



the mining area rim, thereby further limiting the potential for light to reach adjacent properties.

Lighting on the Upper Site portion would be located primarily on conveyors and loaders within the mining area. Proposed fixed lighting sources on the Upper Site portion would also use low pressure sodium bulbs and full cutoff luminaires. In addition, proposed lighting sources would be located below the top of the mining area rim.

## **Public Utilities**

The Proposal would require electric service to operate the processing facility, conveyor line, offices, vehicle maintenance shop, and site lighting. The applicant would discuss project needs with electric providers, Tanner Electric Company, and Puget Sound Energy after the project is approved. The decision on which electricity provider to use would be based on rates and competitive bidding. The providers have said that adequate electric supply would be available.

Sewage disposal would be limited to that generated by toilets, sinks, and showers in office spaces and maintenance facilities on the Lower Site portion. Sewer service is not proposed. Instead, a septic system and drainfield would be built at the Lower Site portion, or portable sanitary facilities would be used. The location for the septic system and drainfield has not been determined. The Upper Site portion would be serviced by portable sanitary facilities.

## **Transportation**

Daily truck trips at full mining operation, including asphalt and concrete plants, are estimated to average 550 per day, and 998 trips per day during the peak construction month. The trucks would exit the Lower Site portion on SE 146th Street. Most of the trucks are expected to turn south onto 468th Avenue SE and then onto westbound I-90 at Exit 34. Trucks entering the site would mostly exit I-90 at Exit 34, travel north on 468th Avenue SE, and then turn right onto SE 146th Street.

To accommodate the increase in traffic, Cadman, Inc. has proposed to widen 468th Avenue SE to a three-lane road. Improvements would include curbs, gutters, sidewalks, and stormwater drainage. These improvements are in the preliminary design stages and pending discussions with Washington State Department of Transportation, Snoqualmie Valley School District 410, Seattle Truck Town East, and the Edgewick Inn.

## **Environmental Health**

### **Hazardous Substances**

***Petroleum Products.*** Table 2-5 provides a list of the hazardous materials that would be used and stored at the Lower Site portion. A 10,000-gallon fuel tank is proposed to store diesel fuel onsite. The

aboveground tank would be used for fueling vehicles. Cadman, Inc. also is exploring the use of diesel fuel to run the asphalt plant. If diesel fuel is chosen, another 15,000- to 20,000-gallon storage tank would be needed. Fuel facilities would feature double-walled tanks in concrete containment, or equal or greater protection technology.

**Table 2-5**  
**Materials Storage and Handling Features**

Materials	Storage Areas and Containment	Comments
<b>Proposal</b>		
<b>Maintenance Facility</b> Oil Storage Shed -- Fresh Oil, Waste Oil, Hydraulic Fluid, and Petroleum Lubricants.  Waste Oil Aboveground Storage Tank (AST) (2,000 gallons). Diesel AST (10,000 gallons).  Adhesives and sealants; lubricants; solvents, paints, and thinners; fuel additives; soaps and cleaners; and welding materials.	Roofed enclosure with concrete flooring and containment. Fueling pad with oil and water separator or dead end sump.  Concrete containment, double-wall steel construction and overhead coverage.  Shop building with concrete floors.  All flammable materials would be kept in fire-proof storage.	Maintenance facility included in site emergency response plan. Waste petroleum and cleaning products are periodically reprocessed offsite with no discharge.
<b>Vehicle Wash Pad</b> Steamcleaner	Self-contained concrete pad with a complete recycle of water.	No discharge of water.
<b>Wash Facility</b> Silts washed from sand and gravel.  Flocculents and polymers.	Wash facility shed enclosure storage.  Stored and used according to manufacture guidelines.	Discharged in effluent to ponds. Added to wash facility effluent to aid fines settling. There will be no discharge.
<b>Concrete Facility</b> Concrete set retarders, accelerators, plasticizer, and various chemical compounds used as admixtures.  Mixer truck slurry washout.	ASTs within concrete enclosure or other secondary containment.  Admixtures individually stored within a concrete containment area.  Closed loop recycling system.	Reagents consumed during batching.  There will be no discharge.
<b>Asphalt Facility</b> Tar and other petroleum binders, Stoddard solvent or similar petroleum hydrocarbons.	ASTs within concrete enclosure or other secondary containment.	Petroleum products consumed during batching. No discharge.
<b>Wash Facility</b> Silts washed from sand and gravel.	Discharged to wash facility ponds. Transferred via slurry pipeline for placement as backfill in pit.	

**Flocculent Use.** Flocculents are proposed to be used to promote settling of particles from the process water collected in the settling ponds. The proposed product is Nalco 7888, with aluminum hydroxychloride as its active ingredient.

**Spill response.** Cadman, Inc. has developed a Draft Spill Prevention and Emergency Response Plan for the Proposal (Appendix A). The plan identifies the procedures that would be used to prevent spills and the steps that would be followed in the event of a hazardous

material spill. Spill response equipment would be maintained onsite and crews would be regularly trained to use it.

## **Biosolids**

As part of site reclamation, a commercially available biosolid compost product may be used as a soil amendment if post-mining soil conditions warrant. Biosolids consist of municipal sewage sludge that is primarily organic, can be beneficially recycled, and meets the applicable requirements of the Biosolids Management Regulations, Chapter 173-308 of the Washington State Administrative Code (WAC). Biosolids are considered to have soil conditioning value because they increase the organic matter content of the soil and act as a fertilizer because of the presence of nitrogen and phosphorous (Ecology, 1992).

At other Cadman, Inc. locations, the use of live topsoil management has all but removed the need for soil enhancements. The same topsoil management would be used at the Lower and Upper Site portions, so little biosolid compost product is expected to be needed.

### **2.2.2.7 Reclamation**

A Revised Draft Reclamation Plan for the proposed project site was completed by John C. Dunton on May 25, 2000. Reclamation would be accomplished in accordance with a final reclamation plan approved by WDNR plan. Initial mining would create approximate 2H : 1V (horizontal to vertical) slopes. Reclaimed slopes would be enhanced to 3H : 1V to 4H : 1 V. The Lower Site portion, which would serve as the processing area, would not be reclaimed until mining is finished. Reclamation of Upper Site portion segments would not begin until the area has provided enough space for operational needs, such as conveyor uptake surge piles, and stormwater and settling ponds. After operational needs are met, reclamation slopes can be prepared for revegetation. After mining ends, some portion of berms may be used as reclamation material.

Cadman, Inc. cannot accurately depict the final configuration of the mine at this time, although typical or conceptual illustrations can be prepared. These final drawings are usually prepared and submitted to WDNR for approval after the local permitting process is complete and mitigations are known. The final configuration of the mine is dependent on many variables, including:

- Limitations to mining due to environmental protections (such as depth of mining, conditions for groundwater protection, location of processing facilities, and location of access roads)
- Limitations due to market demand
- Limitations due to economic considerations
- Limitations due to the type of material encountered during mining

The final floor of the mine would not be flat. The topography of the mine floor would accommodate surface water flow to designated areas of storage and infiltration, and provide topographic variation (sinuous topography). Backfill would not be required to accomplish reclamation goals. However, if backfill is available either from non-marketable onsite sources or from offsite sources, Cadman, Inc. would use backfill materials to enhance reclamation topography.

Woody debris is considered a resource to be preserved for reclamation, if possible. After initial development of the Upper Site portion, the sequence of clearing, preparation, and reclamation would include:

- Saleable trees would be harvested for sale by the landowner.
- Live vegetation and woody debris would be incorporated into topsoil during clearing.
- Topsoil and incorporated woody debris would be immediately taken to a completed mine segment and utilized for reclamation.

The above reclamation sequence assumes that a previously mined segment is completed and ready for final reclamation. The incorporation of woody debris and live vegetation enhances reclamation and can quickly reintroduce native species. Soil enhancement and fertilization may be used to aid the reforestation effort.

Ground cover seeding would be accomplished by mechanical broadcasting, with specific seeding mixture, rate of application, and planting schemes finalized at the time of final reclamation of each segment. No water other than rainfall is expected to be required to reestablish vegetative cover. If groundcovers are planted prior to first rains in the fall and evergreens are planted in late winter, adequate precipitation should be available. Average rainfall in the area is estimated at more than 80 inches annually. WDNR requires a minimum of 190 healthy stems per acre 3 years after planting for reforestation. WDNR guidelines recommend an initial planting of 300 stems per acre in order to achieve the requirement.

Ponds used in the mining operation would be reclaimed to look more natural, provide for wildlife functions, and continue to provide infiltration capacity.

## **2.3 Development of Alternatives to the Proposal**

Based on market demand, production, and operational requirements prescribed by Cadman, Inc., King County evaluated a number of alternatives involving different degrees of use of both the Lower and Upper Site portions. All of these alternatives encompassed the following objectives:

- To ensure Cadman, Inc. could actively mine the site(s) and conduct operations including crushing, washing, and screening to make marketable finished products

- To minimize the impact of feasible alternatives on the surrounding neighborhood
- To minimize impacts on the environment including visual impacts
- To maximize the use of the resource

From the alternatives discussed and considered by King County, two “Action” Alternatives (Alternatives 3 and 4) emerged as viable alternatives in addition to the Proposal. The Proposal (Alternative 2) and Alternative 3 both include options that are referred to as Alternatives 2A and 3A, respectively. Alternatives to the Proposal include:

- Alternative 1–No Action
- Alternative 2A–Upper Site Mining and Limited Lower Site Mining - Exit 34
- Alternative 3–Lower and Upper Sites Mining - Exits 34 and 38
- Alternative 3A–Upper Site Mining and Limited Lower Site Mining - Exits 34 and 38
- Alternative 4–Upper Site Mining -Exit 38

## 2.4 Description of Alternatives to the Proposal

The alternatives to the Proposal are described below. The description of the Action Alternatives focuses on the differences between the Proposal and the alternatives. Table 2-6 shows the major differences among the proposed Action Alternatives. Alternatives 2, 3, and 4 include mining and processing operations. Differences among these Action Alternatives include the site portions to be mined; location of processing facility; whether the project will include a conveyor, asphalt plant, and concrete plants; and haul routes.

**Table 2-6  
Comparison of Alternatives**

	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
Mining	No	Lower & Upper Site portions	Lower & Upper Site portions	Upper Site portion only
Conveyor	No	Yes	No	No
Underground water vault	No	Yes	Yes	No
Pipeline	No	Yes	Yes	Yes
Processing facilities	None	Lower Site portion	Upper Site portion	Upper Site portion
Aggregate haul route	None	468th Avenue SE to Exit 34	From Lower Site portion, 468th Avenue SE to Exit 34. From Upper Site portion, SE Grouse Ridge Rd to Exit 38. Some aggregate would be hauled to Lower Site portion via Exit 34	SE Grouse Ridge Rd to Exit 38
Asphalt/concrete facilities	None	Lower Site portion	Lower Site portion	None
Asphalt/concrete haul route	None	468th Avenue SE to Exit 34	468th Avenue SE to Exit 34	None
Peak month vehicle trips	None	998 daily	1,116 daily	938 daily

## **2.4.1 Alternative 1–No Action**

Under Alternative 1, no construction activity related to the Proposal would occur on the Lower or Upper Site portions (see Figure 2-16). No action does not mean that development activity will never occur. A potential land use would continue to be harvesting of trees on the Lower and Upper Site portions. If the land remains in forest production, forestry activity would occur over a shorter period than the proposed mining. A “no action” alternative offers a comparison of the Proposal with existing conditions and activities. Under Alternative 1, Weyerhaeuser Company would not donate the mining sites to public agencies.

## **2.4.2 Alternative 2A–Upper Site Mining and Limited Lower Site Mining - Exit 34**

An option to the Proposal would limit mining of the Lower Site portion to 33.5 acres, rather than the 40 acres proposed for Alternative 2 (see Figures 2-17 and 2-18). An operations/processing plant would encompass 20.1 acres (rather than 25 acres) on the excavated mine floor approximately 40 to 70 feet below the current grade. Under Alternative 2A, the total cut at the Lower Site portion would be approximately 2,550,000 cubic yards. Topsoil would constitute the top 2 feet, or approximately 114,000 cubic yards.

The smaller mining area and operations and processing facility would be at least 1/4 mile from the nearest residence. King County has determined that this alternative would not require a CUP. Other aspects of Alternative 2A for all Lower Site and Upper Site portion operations would remain the same as those in Alternative 2.

## **2.4.3 Alternative 3–Lower and Upper Sites Mining - Exits 34 and 38**

Under Alternative 3 (see Figures 2-19 and 2-20), gravel excavation and development of concrete and asphalt plants at the Lower Site portion would be the same as under Alternative 2. King County has determined that Alternative 3 would require a CUP because mining activities would occur within a 1/4 mile of the nearest residential structure. Aggregate extracted from the Lower Site portion would be transported from the site via 468th Avenue SE to I-90 Exit 34. Aggregate would be hauled by truck from the Upper Site portion to Lower Site portion for concrete and asphalt production. This material would be hauled via SE Grouse Ridge Road and Exit 38 to Exit 34 and 468th Avenue SE. Aggregate processed at the Upper Site portion or being transported to an offsite location would be hauled from the Upper Site via SE Grouse Ridge to I-90 Exit 38. The conveyor would not be constructed, but a pipeline along the proposed conveyor alignment would transport fresh water from the Lower

Site portion underground water storage vault to the Upper Site portion for processing operations.

The processing plant, including secondary and tertiary crushers, vertical sorting screens, washing equipment, dust control devices and conveyors, would be built at the southeast section of the Upper Site portion. Other facilities would include a contained fuel storage, operations office, and vehicle-maintenance building. Construction of a concrete block office or portable office trailer and lunchroom would occur after the southeastern section of the site has been excavated to an elevation of 1,535 feet. Power, telephone lines, and water would be necessary at the Upper Site portion.

Excavations would continue from east to west, and to the south. Overburden would be removed from new deposit areas in 1-year increments prior to excavation. At its peak, the mining operation is expected to produce up to 2.1 million tons of gravel, 100,000 cubic yards of concrete, and 150,000 tons of asphalt each year.

#### **2.4.4 Alternative 3A–Upper Site Mining and Limited Lower Site Mining - Exits 34 and 38**

Alternative 3A (see Figures 2-21 and 2-22) would combine the reduced excavation area at the Lower Site portion described above in Alternative 2A with the operations of Alternative 3. The smaller mining area and operations and processing facility would be at least 1/4 quarter mile from the nearest established residence. King County has determined that this alternative would not require a CUP. Other aspects of Alternative 3A for all Lower Site and Upper Site portions operations would remain the same as those for Alternative 3.

#### **2.4.5 Alternative 4–Upper Site Mining - Exit 38**

Under Alternative 4 (see Figures 2-23 and 2-24), the Lower Site portion would not be mined or developed. King County has determined that Alternative 4 would not require a CUP because mining activities would not occur within 1/4 mile of the nearest residential structure. Processing facilities at the Upper Site portion would include primary and secondary crushers, vertical sorting screens, washing equipment, dust-control devices, and conveyors. Other facilities would include a contained fuel storage, operations office, and vehicle-maintenance area (or building). Vehicle fueling would take place at the Upper Site portion. Construction of an office and lunchroom would occur after the southeastern section of the site has been excavated to an elevation of 1,535 feet. Power, telephone lines, and water would be necessary at the Upper Site portion. A water well located on the Lower Site portion would provide the freshwater supply for the Upper Site portion through an aboveground pipeline along the conveyor alignment proposed for Alternative 2.

Excavations would continue from east to west and to the south. Overburden would be removed from new deposit areas in 1-year increments prior to excavation. Onsite concrete and asphalt batch plants are not included in this alternative. At its peak, the Upper Site portion is expected to produce up to 2.1 million tons of gravel each year.

## **2.5 Alternatives Considered But Not Advanced**

Citizens and public officials, concerned about traffic impacts with the proposal, proposed that Cadman, Inc. consider using I-90/Exit 38 as an alternative to its proposed use of I-90/Exit 34. These alternatives involve the use of lands that are not presently owned or controlled by Cadman, Inc. The State Environmental Policy Act (SEPA) does not require a private applicant to consider offsite alternatives.

### **2.5.1 Exit 38/Homestead**

In response to requests to consider Exit 38 alternatives, Weyerhaeuser Company and Cadman, Inc. commissioned Hart Crowser to create conceptual development scenarios using Exit 38-West and to assess their environmental and operational implications (Hart Crowser, 1999b). Hart Crowser considered numerous potential scenarios and created two conceptual development scenarios.

#### **2.5.1.1 Scenario 1**

The Lower Site portion would be excavated in the early years of the project and material would be marketed as pit-run product (unprocessed material). The site would later be used for the project's asphalt and concrete batch operations. Material to supply the operation would be transported down from Grouse Ridge via a new northern access road. The Homestead Valley property would be used to provide access to the top of Grouse Ridge and to site facilities for secondary crushing, gravel washing, and screening. To provide access to the top of the ridge, a second road would need to be constructed along the south and west sides of the hill. The primary crusher would be located on top of the ridge. Product would be conveyed from the Upper Site portion to a drop point above the Homestead Valley property.

#### **2.5.1.2 Scenario 2**

The second scenario examined the potential for eliminating the long-term use of Exit 34 by placing all processing facilities on the top of the ridge and at Homestead Valley. The Lower Site portion would be excavated and reclaimed. Material would be crushed, washed, and screened on top of the ridge and then conveyed to a drop point above the Homestead property. Asphalt and concrete batch operations would be located on a pad in the area of the current Homestead operation. Access to the ridge would be via a new southern access road on the west and south slopes.



### **2.5.1.3 Technical feasibility**

Hart Crowser subsequently reviewed Scenarios 1 and 2 for technical feasibility, concluding that while either of the scenarios would relocate some or all of the potential traffic impact from Exit 34, the alternative scenarios triggered a series of operational and environmental concerns. The report states that adequate mitigation of environmental risks would be difficult, if not impossible. One concern cited is that mitigation measures implemented to support expanded operations may fail, particularly those related to slope stabilization and stormwater management. The report concludes, “Each of these concerns may consist of a combination of operating constraints, logistical challenges, substantial permitting issues and environmental risks that far exceed those of Cadman's Proposal” (Hart Crowser, 1999b).

King County asked Dames & Moore (now URS Corporation) to complete a technical review of the Hart Crowser report, including an evaluation of the methods used, conclusions drawn, and recommendations made. This review was completed on June 16, 1999, and is available at the King County DDES. The Dames & Moore technical review provides closure to the discussion of the Homestead Valley alternative, which was not carried forward. This review was completed as part of the SEPA scoping process (WAC 197-11-793).

### **2.5.2 Exit 38/WDNR**

Jones & Jones designed two new access routes to the top of Grouse Ridge via the south slopes. These routes included traversing King County and WDNR lands. The Jones & Jones evaluation of existing topography revealed that extensive cuts and fills would be required to satisfy requirements of sand and gravel haul trucks. Slope stabilization, the presence of wetlands, protection of the South Fork of the Snoqualmie River, and a Spotted Owl Nesting Habitat designation were the significant issues identified by Jones & Jones. Accordingly, these routes were not given further detailed consideration in this FEIS.

## **2.6 Benefits and Disadvantages of Delaying Implementation of the Proposal**

The benefits of delaying action on the proposal would include:

- Environmental impacts related to traffic, air quality, noise, aesthetics, water, plants, and animals would be delayed. Recreational users would not have views of mining operations, although they may view tree harvesting.
- Sand and gravel resources would be reserved for future use.
- Long-term delay of mining combined with no tree harvest would bring about improved wildlife habitat.

The disadvantages of delaying action on the proposal would include:

- Sand and gravel would not be made available for construction in the near term. Contractors have noted increasing costs due to lack of nearby aggregates.
- New jobs would not be created.
- Transfer of the Lower and Upper Site portions to public ownership would be delayed.

Development of the mining operation would not foreclose other options in the future. The Proposal is designed to allow for forestry following reclamation. (The MOU calls for continued forestry following reclamation.) King County's Comprehensive Plan designates the sites within the Forest Production District.